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TMX - 68937

NTIS HC \$3.00

ERTS-1 OBSERVATIONS OF FLOOD DAMAGE IN WEST

CENTRAL IOWA IN SEPTEMBER 1972

by

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Record rainfalls up to 21 inches were measured on September 10-12, 1972 in West Central Iowa with the maximum occurring in Shelby County. At Harlan, Iowa 12.49 inches of rain fell on the 11th, and the 3-day total was 20.00 inches. This is an extremely rare event for Iowa; the approximate 100-year recurrence value for a 3-day rainfall over Shelby County is 8.2 inches. As a result of this storm heavy flooding occurred on September 11-15, primarily on the West and East Nishnabotna Rivers. Both rivers experienced peak flows equal to or greater than the 100 year flood in the upstream reaches. Channel storage capacity reduced flood severity in the downstream sections. Total flood damage was set at about \$15,000,000. ERTS-1 observations in the 0.8-1.1 μ m band on September 18 clearly show the area of inundation associated with the flood as an area of reduced reflectivity. The reduced near infrared response is due to high soil moisture, plant stress conditions, and standing water. Analysis of the ERTS-1 imagery indicated that about 230 and 210 km² of land were inundated along the West and East Nishnabotna Rivers respectively. Comparison of ERTS-1 flood damage assessments with ground investigations and high resolution aircraft imagery determinations was made.

(E73-10045) ERTS-1 OBSERVATIONS OF FLOOD
DAMAGE IN WEST CENTRAL IOWA IN SEPTEMBER
1972 (NASA) 1 p HC \$3.00
CSCL 08H

N73-16308

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